San Jose/Santa Clara Water Pollution Control Plant

THINGS TO REMEMBER

- ***Report ALL violations within 24 hours of discovery***
- ***Failure to report a pH excursion can lead to severe fines and penalties***
- ***Many pH violations can be prevented with a more thorough equipment calibration/ inspection process***

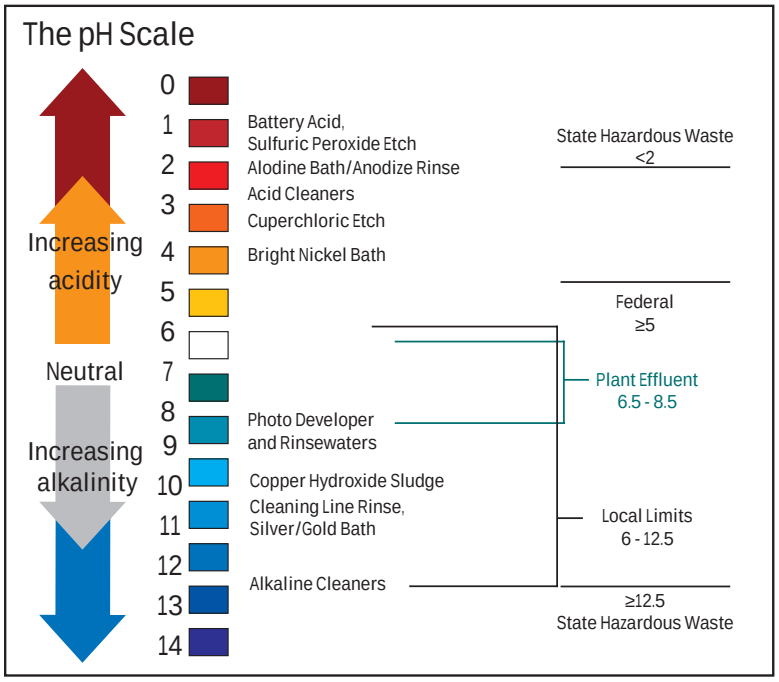
www.sanjoseca.gov/esd

The San Jose/Santa Clara Water Pollution Control Plant serves the cities of San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, Saratoga), County Sanitation Districts 2 3, Sunol & Burbank Sanitary Districts

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Environmental Services

pH Fact Sheet

pH is a measure of the hydrogen ion concentration in a solution. A neutral pH, as that of pure water, is 7.0. A pH of below 7 is on the acidic side while a pH of above 7 is on the basic side.



Why is pH Monitoring Important?

As a permitted Industrial User, you have an obligation to fulfill the conditions of your Industrial Wastewater Discharge Permit and the requirements of your local municipal code (Industrial Waste Discharge Regulations section), which states:

"No person shall discharge, cause, allow or permit to be discharged into the Sanitary Sewer System or any part thereof, any liquid, solid, vapor, gas, or (anything having a pH lower than six (6.0) or more than twelve and one-half (12.5)…"

The San Jose/Santa Clara Water Pollution Control Plant (Plant) has an NPDES discharge limit for pH 6.5 – 8.5. A pH value above or below this range can cause the Plant to be in violation of its discharge limits, leading to toxic releases of wastewater to the South San Francisco Bay.

In addition, acidic discharges from your facility can cause sewer corrosion, generate sewer odors and endanger sewer workers. Thus, regulating the pH of sewage in the collection system that leads to the Plant will help protect the sewer infrastructure, the Plant, the public and the health of the Bay.

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What are the Effects of Low/High pH?

A pH value outside of the desired range can promote dissolution of metals in your onsite treatment system. In addition, acutely acidic/caustic solutions can endanger the safety of your workers, releasing toxic fumes and causing chemical burns.

Low pH also affects the collection system and equipment by producing hydrogen sulfide gas (H_2S), which is the primary cause of sewer odors. In high enough concentrations, H_2S can generate explosive conditions in the sewer, endangering collection system workers and the general public. H_2S in sewers is eventually oxidized to form strong sulfuric acid (H_2SO_4), which attacks the concrete in sewer pipes, causing severe corrosion. Long-term exposure to acidic discharges can result in pipe failure, pump station failure, collection interceptor breakdown, disruption of service, and uncontrolled releases of wastewater.

High pH interferes with the biological processes at the Plant, precipitating unwanted sludge and evolving ammonia gas (NH_3). Because optimum biochemical oxygen and nitrogen removal at the Plant can only be achieved at neutral pH, neutralizing the wastewater to effect optimal pollutant removal will influence the economics of waste treatment.

How We Monitor pH

We have several programs in place that monitor and assess the quality of the Plant influent:

- Compliance Inspections, when we review your daily pH logs
- Annual Inspections, when we review your 3-year pH logs
- Facility Sampling, where we collect and test wastewater samples from your facility for violations
- Your monthly Self-Monitoring Reports (SMRs), which we review for violations
- Plant Headworks pH recorder, which measures the pH of the Plant influent
- Surveillance Monitoring, where we set up samplers in the sewer line near the facility and analyze the collected wastewater samples for compliance

Causes of pH Fluctuation at your Facility

The pH of your waste stream can fall outside the desired pH range if:

- The pH equipment is insufficiently calibrated
- The acidic/caustic baths are discharged in slugs
- The equipment is not inspected frequently
- The equipment is broken and/or malfunctioning
- The onsite treatment system is poorly maintained

How pH Fluctuation Impacts Economics

Not only are pH fluctuations potentially hazardous, they're also costly in the following ways:

- Excess chemicals for neutralizing wastes
- Lost time and money

Consequences of pH Violations

Failure to report a pH excursion is a violation of your Industrial Wastewater Discharge Permit and/or state and federal regulations, and can lead to the following consequences:

- Severe fines and penalties, ranging from a verbal warning to legal action to monetary fines.
- A referral to the City Attorney's or the District Attorney's office for prosecution

Preventing pH Violations

See the pH poster and remember the following:

- Keep pH equipment operational at ALL times
- Keep pH probe in the sample point at ALL times
- Inspect pH equipment daily
- Keep pH equipment properly calibrated
- Document, report and repair malfunctioning and/or broken equipment
- Maintain pH chart paper onsite for 3 years
- Develop a back-up pH monitoring and recording plan
- Above all, report ALL violations within 24 hours of discovery to your Inspector

If you have questions about pH monitoring or would like a pH Requirements poster, please contact your Source Control Inspector at: **(408) 945 3000**.

Ask your inspector for a pH Reporting Requirements Poster